

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Andersen et al.

Serial No.: To be assigned

Confirmation No: To be assigned

Group Art Unit: To be assigned

Filed: August 9, 2001

Examiner: To be assigned

For: Amylase Variants

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, DC 20231

Sir:

Before the above-captioned application is taken up for examination, please amend the application as follows (a marked up version pursuant to 37 C.F.R. 1.21 is attached hereto):

**IN THE CLAIMS:**

Please cancel claims 4, 6, 8, 10, 19, 21-23 and 25-53 without prejudice or disclaimer.

Please substitute the following amended claims for the pending claims having the same claim numbers:

3. The variant of claim 1, which further comprises a mutation in M202.
5. The variant of claim 1, which further comprises a mutation in N195.
7. The variant of claim 1, which further comprises a mutation in G186.
9. The variant of claim 1, which further comprises a mutation in R181.
11. The variant of claim 1, wherein the parent Termamyl-like alpha-amylase is derived from a strain of *B. licheniformis*, *B. amyloliquefaciens*, *B. stearothermophilus*, *Bacillus* sp. NCIB 12289,

NCIB 12512, NCIB 12513 or DSM 9375, or DSMZ no. 12649, KSM AP1378, or KSM K36 or KSM K38.

12. The variant of claim 1, wherein the parent Termamyl-like alpha-amylase has an amino acid sequence of SEQ ID NOS: 2, 4, 6, 8, 10, 12, or 13.

13. The variant of claim 1, wherein the parent Termamyl-like alpha-amylase has an amino acid sequence which has a degree of identity to SEQ ID NO: 4 of at least 60%.

14. The variant of claim 1, wherein the parent Termamyl-like alpha-amylase is encoded by a nucleic acid sequence, which hybridizes under low stringency conditions, with the nucleic acid sequence of SEQ ID NO: 11.

15. The variant of claim 1, which variant has altered solubility, preferably increased solubility, in particular under washing, dish washing or hard surface cleaning conditions.

16. A DNA construct comprising a DNA sequence encoding a variant of claim 1.

18. A cell which is transformed with a DNA construct of claim 16.

20. A composition comprising a variant of claim 1.

24. A detergent composition comprising a variant of claim 1 and a surfactant.

# REMARKS

This amendment is submitted to cancel claims in order to reduce the filing fee and to remove multiple dependencies. There is no new matter added, and entry of the amendment is respectfully requested.

This application contains a Sequence Listing. Applicants enclose a 3.5" floppy disk containing the Sequence Listing. The content of the attached paper entitled "SEQUENCE LISTING" and of the accompanying identically labelled diskette is the same.

The Examiner is hereby invited to contact the undersigned by telephone if there are any questions concerning this amendment or application.

Respectfully submitted,

Date: August 9, 2001



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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Andersen et al.

Serial No.: To be assigned

Confirmation No: To be assigned

Group Art Unit: To be assigned

Filed: August 8, 2001

Examiner: To be assigned

For: Amylase Variants

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

Sir:

Below is a marked-up version of the amendments made in the accompanying amendment.

**IN THE CLAIMS:**

Claims 3, 5, 7, 9, 11-16, 18, 20, and 24 have been amended as follows:

3. The variant of claim 1 ~~or 2~~, which further comprises a mutation in M202.
5. The variant of claim 1 ~~any of claims 1-4~~, which further comprises a mutation in N195.
7. The variant of claim 1 ~~any of claims 1-6~~, which further comprises a mutation in G186.
9. The variant of claim 1 ~~any of claims 1-8~~, which further comprises a mutation in R181.
11. The variant of claim 1 ~~any of claims 1-10~~, wherein the parent Termamyl-like alpha-amylase is derived from a strain of *B. licheniformis*, *B. amyloliquefaciens*, *B. stearothermophilus*, *Bacillus* sp. NCIB 12289, NCIB 12512, NCIB 12513 or DSM 9375, or DSMZ no. 12649, KSM AP1378, or KSM K36 or KSM K38.
12. The variant of claim 1 ~~any of claims 1-11~~, wherein the parent Termamyl-like alpha-amylase has an amino acid sequence of SEQ ID NOS: 2, 4, 6, 8, 10, 12, or 13.

13. The variant of claim 1 ~~any of claims 1-11~~, wherein the parent Termamyl-like alpha-amylase has an amino acid sequence which has a degree of identity to SEQ ID NO: 4 of at least 60%, ~~preferably 70%, more preferably at least 80%, even more preferably at least about 90%, even more preferably at least 95%, even more preferably at least 97%, and even more preferably at least 99%.~~

14. The variant of claim 1 ~~any of claims 1-11~~, wherein the parent Termamyl-like alpha-amylase is encoded by a nucleic acid sequence, which hybridizes under low, ~~preferably medium,~~ preferred high stringency conditions, with the nucleic acid sequence of SEQ ID NO: 11.

15. The variant of claim 1 ~~any of claims 1-14~~, which variant has altered solubility, preferably increased solubility, in particular under washing, dish washing or hard surface cleaning conditions.

16. A DNA construct comprising a DNA sequence encoding a variant of ~~any of claims 1-15.~~

18. A cell which is transformed with a DNA construct of claim 16 ~~or a vector of claim 17.~~

20. A composition comprising a variant of ~~any of claims 1-15.~~

24. A detergent composition comprising a variant of ~~any of claims 1-15~~ and a surfactant.